

**Carl Moyer Program Advisory: 05-001****Revised Cost-Effectiveness Calculation and  
Minimum Project Life**

*This page updated December 20, 2004*

This advisory provides guidance on the interim method for calculating cost-effectiveness for Carl Moyer Program projects. It also provides interim guidance on minimum project life. This advisory does not apply to agricultural emission reduction projects directly funded with the \$2 motor vehicle fee. For those projects, please see Advisory 5-002 for guidance.

On January 1, 2005, new legislation (AB 923, Firebaugh) requires the Air Resources Board (ARB or Board) to establish cost-effectiveness limits for projects that reduce emissions of oxides of nitrogen (NO<sub>x</sub>), particulate matter (PM<sub>10</sub>), and reactive organic gases (ROG). Cost-effectiveness was previously based only on NO<sub>x</sub> emission reductions. Now ARB must establish appropriate factors to calculate a weighted cost-effectiveness for PM<sub>10</sub> and ROG. This change allows funding of NO<sub>x</sub>, PM<sub>10</sub>, and ROG emission reduction projects. With funding now available for PM<sub>10</sub> reduction projects, the requirement that PM<sub>10</sub> non-attainment districts reduce PM<sub>10</sub> by 25 percent on a program-wide basis is no longer necessary and will be discontinued starting with Year 6 funds.

Further, the legislation allows the ARB to establish minimum project life limits for funded source categories. Previously, all projects had to operate for a minimum of 5 years in the state.

The legislation requires the ARB to establish or update grant criteria and guidelines for covered projects, as revised by the bill, by January 1, 2006. This Advisory will serve as an interim guideline to allow qualified projects to proceed before the guidelines are adopted by the Board; however, the Advisory will eventually be superseded by Board-adopted guidelines. After October 2005, interested persons should consult <http://www.arb.ca.gov/msprog/moyer/moyer.htm> or ARB staff to determine if Board-adopted guidelines are available.

This advisory sets minimum project criteria. Local air pollution control district requirements may be more stringent.

**What is cost-effectiveness?**

Cost-effectiveness is a measure of dollars provided to a project for each ton of covered emission reductions. To calculate cost-effectiveness, the project grant amount is annualized based on the project's life and a discount rate. This annual cost is then divided by the project's estimated annual emission reductions. As noted above, cost-effectiveness calculations will now include reductions of NO<sub>x</sub>, PM<sub>10</sub>, and ROG emissions.

**What is the maximum, allowable cost-effectiveness?**

The maximum cost-effectiveness for a Carl Moyer Program project is \$13,600 per ton of NOx, PM10, and ROG emissions reduced. However, local air districts may set lower thresholds to maximize program effectiveness.

**How will NOx, PM, and ROG be treated in cost-effectiveness calculations?**

The sum of a project’s NOx, PM10, and ROG emission reductions will be used to calculate cost-effectiveness. This will allow projects that reduce one, two, or all of the covered pollutants to receive funding. NOx, ROG, and non-combustion PM10 emission reductions will be given equal weight; however, emission reductions of combustion PM10 (such as diesel PM10) are a priority and will carry greater weight in the calculation.

Reducing a ton of combustion PM10 costs more than reducing an equal amount of NOx, ROG, or non-combustion PM10 (such as wind-blown dust). For example, the estimated cost-effectiveness of reducing diesel PM10 for the Solid Waste Collection Vehicle (SWCV) Air Toxic Control Measure, adopted by the ARB in 2004, was \$134,000 per ton. This is about 10 times the current \$13,600 cost-effectiveness limit for NOx reductions in the Moyer Program. As an interim step, combustion PM10 emission reductions will be given a weight of 10 in the cost-effectiveness calculation for Moyer projects (see the formula below).

Because the benefits of reducing combustion PM10 emissions far outweigh the costs, the weighting factor of 10 is conservative. ARB staff, in consultation with stakeholders, will continue to evaluate the appropriateness of the weight given to each of the pollutants, including combustion and non-combustion PM10. Staff will submit their final recommendations for the guideline revisions, including the method for calculating cost-effectiveness, to the Board in November 2005.

The formula for cost-effectiveness is annualized cost divided by total emission reductions:

$$\frac{\text{Annualized Cost (\$/year)}}{\text{NOx reductions} + 10(\text{combustion PM10 reductions}) + \text{non-combustion PM10 reductions} + \text{ROG reductions (tons/year)}}$$

The above formula allows the calculation of cost-effectiveness for projects that reduce one or more of the covered pollutants.

**How is the annualized cost calculated?**

The annualized cost is the product of the grant amount times a capital recovery factor. The capital recovery factor is calculated using the project life and a rate of inflation. The capital recovery factor will continue to be calculated as shown in the Carl Moyer Program Guidelines (as revised, September 2003). However, AB 923 allows the ARB

to establish minimum project life for source categories—a change from the previous minimum project life of 5 years.

**What is the minimum project life?**

Project life is the number of years that a Carl Moyer Program project obtains surplus emission reductions while operating in California. Surplus emission reductions are reductions that are early or extra. That is, the reductions occur prior to a rule compliance date or the reductions exceed the requirements of a rule or regulation. The current Moyer guidelines set a 5-year minimum for project life.

Starting on January 1, 2005, project lives of 3 years or more will be allowed. This will allow more flexibility in funding projects prior to the implementation of new rules and regulations. The program will also test the feasibility of funding shorter-term, cost-effective projects by considering projects lasting less than 3 year on a case-by-case basis. Districts that fund projects on a first-come, first-served basis should consider competitive ranking or lower cost-effectiveness limits for projects with lives less than 3 years.

This advisory does not apply to agricultural source projects directly funded with the \$2 motor vehicle fee. For those projects, please see Advisory 5-002 for guidance.